

CBO TESTIMONY

**Statement of
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Projecting the Costs to Care for Veterans of U.S. Military Operations in Iraq and Afghanistan

**before the
Committee on Veterans' Affairs
U.S. House of Representatives**

October 17, 2007

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**CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515**

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 17 OCT 2007		2. REPORT TYPE		3. DATES COVERED 00-00-2007 to 00-00-2007	
4. TITLE AND SUBTITLE CBO Testimony. Projecting the Costs to Care for Veterans of U.S. Military Operations in Iraq and Afghanistan				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Congressional Budget Office,Ford House Office Building, 4th Floor,Second and D Streets, SW,Washington,DC,20515-6925				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 21	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Chairman Filner, Ranking Member Buyer, and other distinguished Members of the Committee, I appreciate the invitation to appear before you today to discuss the challenges that our nation faces in caring for veterans returning from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). My testimony will focus on the numbers of troops who have served in those operations and the numbers who have sustained injuries and provide some indication of the severity of those injuries. I will also address the extent to which veterans of those operations have sought medical care from the Department of Veterans Affairs (VA) and the types of care they have received. Finally, I will discuss the Congressional Budget Office's (CBO's) projections of the resources that VA may require over the next 10 years not only to continue providing that medical care, but also to provide associated benefits such as disability compensation paid to veterans with service-connected disabilities and dependency and indemnity compensation (DIC) paid to survivors of service members.¹

Summary

CBO's analysis to date indicates the following:

- As of December 2006, more than 1 million active-duty military personnel and over 400,000 reservists had deployed to combat operations in the Iraq and Afghanistan theaters. Of those, 690,000 have either separated from the active component or become eligible for VA health care as reservists. In turn, one-third of those personnel (numbering 229,000) have sought VA medical care since 2002.
- About 3,800 U.S. troops have died while serving in OIF, and over 400 have died in OEF. A total of almost 30,000 troops have been wounded in action during those two operations.
- The survival rate among all wounded troops has averaged 90.2 percent during OIF and OEF combined. By comparison, the survival rate during the Vietnam conflict was 86.5 percent. Among seriously wounded troops, the survival rate was lower—76.4 percent—during the Vietnam conflict and has also been lower—80.6 percent—for OIF and OEF combined. Higher survival rates during OIF and OEF reflect the widespread use of body armor, as well as advances in battlefield medical procedures and aeromedical evacuation.

1. This testimony does not address issues that veterans face in obtaining disability ratings from the Departments of Defense and Veterans Affairs or the coordination of medical care and other benefits between those two departments. Many of those issues were recently studied in the following report: President's Commission on Care for America's Wounded Warriors, *Serve, Support, Simplify: Report of the President's Commission on Care for America's Wounded Warriors*, cochairs Bob Dole and Donna Shalala (July 2007).

- A census conducted by the Department of Defense (DoD) indicates 749 amputations from OIF and 42 amputations from OEF through January 2007. The amputation rate is 3.3 percent among all wounded troops.
- Through December 2006, DoD physicians had diagnosed a total of 1,950 traumatic brain injuries (TBIs), of which over two-thirds were classified as mild.² The rate of TBI diagnosis is 8.2 percent among all wounded troops. Some TBIs, however, are difficult to diagnose and may go unrecognized unless screening is performed after a soldier returns to the United States from deployment.
- Post-traumatic stress disorder (PTSD) is also difficult to diagnose. Among OIF and OEF veterans who have received VA medical care, about 37 percent have received at least a preliminary diagnosis of mental health problems, and about half of those (17 percent) have received a preliminary diagnosis of PTSD. The overall mental health incidence rate may be lower to the extent that OIF and OEF veterans who have not sought VA medical care do not suffer from those conditions. On the other hand, some veterans with PTSD or other mental health problems may not seek care because they fear being stigmatized.
- Of the total 229,000 OIF/OEF patients seen by the VA, 3 percent (fewer than 8,000) have been hospitalized in a VA facility at least once since 2002; the other 97 percent were seen on an outpatient basis only. Not all of those patients visit VA medical facilities in any single year; in 2006, for example, 155,000 OIF/OEF patients were treated by VA, accounting for 3 percent of the total veteran patient load. VA estimates an average annual cost of \$2,610 per OIF/OEF veteran who used VA health care in 2006, versus an overall average of \$5,765 per year for all VA patients.
- VA's medical budget is discretionary (that is, lawmakers appropriate funds on an annual basis); it is not possible to project definitively VA's future medical appropriations because they depend on future acts of the Congress. However, depending on the future force levels deployed to OIF and OEF, if the Congress chooses to fully fund medical care for veterans of those operations, VA medical costs explicitly associated with those operations could total between \$7 billion and \$9 billion over the 10-year period 2008 through 2017, CBO projects. The costs of disability compensation and survivors' benefits could add another roughly \$3 billion to \$4 billion over the same period.

2. The classification is based on the length of time a patient remains unconscious immediately after an injury, the duration of post-traumatic amnesia (loss of memory of events immediately following the injury), and the patient's score on the Glasgow Coma Scale. For example, a mild TBI would involve loss of consciousness for less than one hour and post-traumatic amnesia of less than 24 hours.

VA's Health Care System

The Department of Veterans Affairs, through the Veterans Health Administration, operates a system consisting of 153 medical centers, 882 ambulatory care and community-based outpatient clinics (CBOCs), 207 Vet Centers, 136 nursing homes, 45 residential rehabilitation treatment programs, and 92 comprehensive home-care programs providing medical services to eligible veterans.³ Those facilities provide inpatient hospital care, outpatient care, laboratory services, pharmaceutical dispensing, rehabilitation for a variety of disabilities and conditions, mental health counseling, and custodial care provided in either VA or contracted nursing homes. In total, VA facilities employ about 200,000 full-time-equivalent employees, including over 13,000 physicians and nearly 55,000 nurses.

VA estimates that in 2006 there were about 24 million living veterans of the U.S. military. In that year, VA provided medical services to over 5 million veterans and more than 400,000 other patients.⁴ An additional 2.9 million veterans were enrolled in the VA medical system in 2006 but did not seek care from VA facilities that year.

To better care for the injuries suffered by veterans returning from OIF and OEF, VA, in 2005, established a Polytrauma System of Care, which includes four Polytrauma Rehabilitation Centers and additional secondary sites and support.⁵ Those facilities provide rehabilitation and treatment for veterans or returning service members recovering from polytraumas and traumatic brain injuries. VA also provides readjustment services and counseling through its Vet Centers. In addition, in recent years, VA has added about 3,000 new mental health professionals to its staff as part of a mental health initiative.

Under funding provided by continuing resolution in 2007, VA expected to obligate \$573 million that year for veterans of OIF and OEF before considering any supplemental funding. VA received additional supplemental appropriations in 2007 for medical administration costs, medical and prosthetics research, medical services for veterans of OIF and OEF, and other related purposes.⁶

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3. Vet Centers provide readjustment counseling, postwar rehabilitation, and other social services to help improve veterans' postwar work and family lives.
 4. Nonveteran patients include employees (who receive services such as tests and vaccinations required for employment at VA facilities); dependents and survivors of disabled veterans who are eligible for the Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA); and patients seen through sharing agreements with other providers, including DoD's TRICARE program.
 5. VA defines polytrauma as injury to the brain in addition to other body parts or systems resulting in physical, cognitive, psychological, or psychosocial impairments and functional disability.
 6. U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (Public Law 110-28).

The President's budget proposal for 2008 requests budget authority of \$34.6 billion for VA health care services and research (excluding construction costs and net of collections), an increase of 5.9 percent over 2007 levels (the latter excluding supplemental appropriations). The vast majority of the 2008 obligations, \$29.7 billion, would be allocated to providing health care services such as ambulatory care, inpatient acute care, and pharmacy services.⁷ The remainder is allocated for long-term care (\$4.6 billion), other health care programs such as the Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA) and dental care (\$2.1 billion), and the mental health and other initiatives (\$0.4 billion). The portion of VA's 2008 budget request specifically designated for the health care needs of service members returning from OIF and OEF—including their share of VA's total obligations for dental care, readjustment counseling, and VA's mental health initiative—is \$752 million.

Service Members' Eligibility for VA Medical Care

More than 1 million active-duty military personnel have deployed to either the Iraq or Afghanistan theaters of operation. Of the current Army force, more than half have deployed in support of those operations at least once, and 15 percent have deployed to those theaters on two or more occasions. In addition to the active-duty troops, reserve personnel have been mobilized in large numbers—a total of 580,000 reservists had been mobilized through March 2007. Of those, more than 410,000 reservists had deployed to combat operations through December 2006. Troop levels in Iraq have climbed by between 30,000 and 40,000 over the past six months, in turn increasing the number of service members who may qualify for VA medical care in the future.

As of April 2007, about 320,000 active-duty veterans of Operation Iraqi Freedom and Operation Enduring Freedom had separated from military service and become eligible for health care provided by VA. In addition, about 370,000 members of the Reserve or National Guard have returned from OIF or OEF and become eligible for VA health care, even though many of them continue to affiliate with the military.⁸

Traditionally, reserve-component personnel who return from a deployment but remain on the military rolls would not qualify for VA health care until some later date when they were discharged from the service. However, legislation enacted in 1998 (the Veterans Programs Enhancement Act, Public Law 105-368) gave veter-

7. An obligation is a commitment that creates a legal liability on the part of the government to pay for goods and services ordered or received. Such payments may be made immediately or in the future.

8. Between April 2007 and July 2007, the total number of returning service members eligible for VA medical care increased from 690,000 to 717,000. However, the smaller number will be used in the subsequent discussion because the time frame through April 2007 more closely matches the time frame for other types of data used in CBO's analysis.

ans and demobilized reservists returning from combat operations a special two-year period of eligibility for VA health care, waiving any requirements for them to satisfy a means test or demonstrate a service-connected disability. VA provides health care under that authority for free for medical conditions potentially related to military service in combat operations.⁹ VA has established three criteria that indicate noncombat-related conditions, in which case VA will continue to provide health care but may charge a veteran copayments or bill the veteran's third-party insurance:

- Congenital or developmental conditions (such as scoliosis),
- Conditions that are known to have existed before military service, or
- Conditions that begin after military combat service (such as bone fractures that occur after a service member's separation from the military).

Casualty Statistics for U.S. Military Forces

The number of fatalities among troops serving in Operation Iraqi Freedom reached 3,000 in January 2007. Those deaths in Iraq were accompanied by 22,834 troops who were wounded in action. Wounded troops can be classified in two ways: whether or not they return to their units for duty within 72 hours; and, among those who do not return to duty, whether or not they require aeromedical evacuation (see Table 1). Troops wounded in action are distinct from those with nonhostile injuries or disease; the latter are often combined as disease/nonbattle injuries (DNBI). The total number of troops medically evacuated includes those who were wounded as well as others with nonhostile injuries or disease.

Through January 2007, wounded-to-fatality counts stood at a ratio of 7.6 to 1. That oft-cited ratio is higher than the ratios recorded during earlier U.S. military conflicts, reflecting the effects of the widespread use of body armor in Iraq as well as advances in battlefield medical procedures and aeromedical evacuation. However, differences in statistical treatment have hindered some comparisons between the wounded-to-fatality ratio for OIF and those for the Vietnam conflict or other previous conflicts.¹⁰

9. Pending legislation would increase the special eligibility period from two years to five years. See H.R.1585, National Defense Authorization Act for Fiscal Year 2008, Section 1708, passed by the House of Representatives on May 15, 2007.

10. One author asserted a wounded-to-fatality ratio as high as 16 to 1. See Linda Bilmes, "Soldiers Returning from Iraq and Afghanistan: The Long-Term Costs of Providing Veterans Medical Care and Disability Benefits" (Working Paper RWP07-001, Harvard University, Kennedy School of Government, January 2007), p. 3; and "The Battle of Iraq's Wounded: The U.S. Is Poorly Equipped to Care for the Tens of Thousands of Soldiers Injured in Iraq," *Los Angeles Times*, January 5, 2007. In the latter, she states, "for every fatality in Iraq, there are 16 injuries." The statistic of 16 to 1 is also quoted in the graphic ("The Human Cost of War") on p. 43 of *Newsweek*, April 2, 2007. That statistic is too high because it includes among the "wounded" troops who were medically evacuated because of nonhostile injuries or disease.

Table 1.

U.S. Military Casualties Sustained in Operation Iraqi Freedom and in the Vietnam Conflict

	Operation Iraqi Freedom		Vietnam Conflict	
	Number of Casualties	Rate per 100,000 Person-Years	Number of Casualties	Rate per 100,000 Person-Years
Person-Years of Exposure	721,220	n.a.	2,608,650	n.a.
Deaths				
Hostile ^a	2,417	335	47,424	1,818
Other	584	81	10,785	413
Total deaths	3,001	416	58,209	2,231
Wounded in Action				
Returned to duty (Within 72 hours)	12,643	1,753	150,332	5,763
Not returned to duty (Within 72 hours)				
Medical evacuation required	6,670	925		
No medical evacuation required	3,521	488		
Total not returned to duty	10,191	1,413	153,303	5,877
Total wounded in action	22,834	3,166	303,635	11,640
Memorandum:				
Medical Evacuations				
Wounded	6,670	925		
Nonhostile injuries ^b	6,640	921		
Disease	18,183	2,521		
Total medical evacuations	31,493	4,367		

Source: Congressional Budget Office based on data obtained from the following Department of Defense Web sites: For casualties in Iraq (as of January 6, 2007), <http://siadapp.dmdc.osd.mil/personnel/CASUALTY/castop.htm> and (as of January 10, 2007) www.defense.gov/news/casualty.pdf. For casualties in Vietnam, <http://siadapp.dmdc.osd.mil/personnel/CASUALTY/vietnam.pdf> and <http://siadapp.dmdc.osd.mil/personnel/CASUALTY/WCPRINCIPAL.pdf>.

Notes: Estimates of casualties sustained in Operation Iraqi Freedom are from the start of that operation (March 19, 2003) through January 10, 2007. (The Iraq theater of operations includes the Arabian Sea, Bahrain, Gulf of Aden, Gulf of Oman, Iraq, Kuwait, Oman, Persian Gulf, Qatar, Red Sea, Saudi Arabia, and United Arab Emirates.) Casualties suffered by Department of Defense civilian personnel and contractors are excluded from the table. Estimates of the number of casualties that occurred during the Vietnam conflict cover an 11-year period (1964 to 1975).

Person-years of exposure in Vietnam are taken from Samuel H. Preston and Emily Buzzell, "Mortality of American Troops in Iraq" (working paper, University of Pennsylvania, Population Studies Center, 2006). Person-years of exposure in Iraq were computed by the Congressional Budget Office using methods similar to those used by Preston and Buzzell.

n.a. = not applicable.

a. Hostile deaths are synonymous with troops killed in action.

b. Nonhostile injuries describe those not sustained in combat.

Table 2.

Wounded-to-Fatality Ratios for U.S. Troops in Recent Military Conflicts

	Vietnam Conflict	Operation Iraqi Freedom (OIF)	Operation Enduring Freedom (OEF)	OIF and OEF Combined
Number of Wounded Compared with Total Number of Deaths (Hostile and Nonhostile) ^a	5.2	7.6	3.1	7.1
Number of Wounded Compared with Number of Hostile Deaths	6.4	9.4	5.6	9.2
Number of Wounded (Not Returned to Duty) Compared with Number of Hostile Deaths	3.2	4.2	3.3	4.2

Source: Congressional Budget Office.

Note: Operation Iraqi Freedom includes operations in the Arabian Sea, Bahrain, Gulf of Aden, Gulf of Oman, Iraq, Kuwait, Oman, Persian Gulf, Qatar, Red Sea, Saudi Arabia, and United Arab Emirates. Operation Enduring Freedom includes operations in and around Afghanistan.

a. Hostile deaths are synonymous with troops killed in action. Nonhostile deaths describe those that occur as a result of injury not sustained in combat or disease.

There are several ways to calculate both the numerator and denominator of the wounded-to-fatality ratio. Because only troops wounded in action are included in the numerator—not those suffering nonhostile injuries or disease—it could be argued that the denominator should include hostile deaths only, not deaths characterized as nonhostile (in other words, those resulting from vehicle accidents, disease, or other causes). Substituting the 2,417 hostile deaths in Iraq (through January 10, 2007) for the 3,001 total deaths results in a higher ratio of 9.4 to 1 (see Table 2).

If policymakers' objective is to measure U.S. troops' ability to survive serious wartime wounds, it can be argued that, if the denominator is restricted to hostile deaths, the numerator should be restricted to wounds of such severity that the soldier could not return to duty within 72 hours. Because only 45 percent of the wounds in Iraq have met that criterion (a factor that has remained remarkably constant throughout the duration of OIF), the wounded-to-fatality ratios are cut by more than half using that method of computation (see Table 2).

Computed by any of those methods, the wounded-to-fatality ratios are higher in Iraq than they were in Vietnam—indicating a greater possibility of surviving a wound in the current conflict—but the margin is not as large as is sometimes sup-

posed. In addition to the well-known roughly 58,000 deaths that occurred in Vietnam (of which about 47,000 were the result of hostile action), the 153,000 serious wounds imply a ratio of 3.2 wounds per hostile death. Put differently, among troops seriously wounded in Vietnam, 76.4 percent survived their wounds; the corresponding survival rate has been 80.8 percent in Iraq (and 80.6 percent when OEF is included).¹¹

Classification of Injuries Among Surviving Wounded Veterans

The protection afforded by body armor has enabled many soldiers to survive what might otherwise have been fatal injuries to the chest or abdomen. However, the same incidents (for example, detonation of improvised explosive devices, or IEDs) have led to numerous injuries to the extremities, some resulting in immediate or subsequent surgical amputation. Other writers have referred to traumatic brain injury as the “signature injury” of the current conflict. The psychological syndrome known as post-traumatic stress disorder has also received considerable attention in media coverage of the war.

Amputations. Amputees receive their initial care at DoD medical facilities, many at Walter Reed Army Medical Center after having been medically stabilized at Landstuhl Regional Medical Center in Germany. Patients may stay at Walter Reed for an extended period (typically months), receiving prosthetic limbs with attendant physical and occupational therapy as well as any other required medical care. Some amputees petition to return to active military service, but most are eventually discharged from the military and transition to the VA medical system.

A census conducted by DoD indicates that, through January 2007, 749 amputations had occurred during OIF and 42 during OEF. The incidence rates are 3.3 percent among all troops wounded in OIF and 3.8 percent among all troops wounded in OEF. Further, of the 671 amputations from either conflict that were attributable to combat injury, 95 (14 percent) involved fingers or toes only (albeit sometimes multiple fingers or toes), not hands, feet, or entire limbs. Although those injuries are still serious and partially disabling, the costs to care for patients losing finger or toes are much lower because most such patients do not receive prosthetic devices.

Traumatic Brain Injuries. The number of traumatic brain injuries attributable to service in OIF or OEF is much more difficult to measure; although DoD has compiled estimates, a complete census does not exist. Some TBIs are identified in-theater (for example, immediately after an IED attack), in which case the soldier would most likely be medically evacuated to Landstuhl Regional Medical Center. Other TBIs may escape initial diagnosis because they are associated with closed wounds rather than with obvious penetration wounds (such as gunshot or shrapnel

11. Considering all hostile wounds, whether or not they are classified as serious and whether or not wounded service members return to duty within 72 hours, the survival rates were 86.5 percent in Vietnam, 90.4 percent in Iraq, and 90.2 percent for all of OIF and OEF.

wounds). Those TBIs often arise in polytrauma victims in which the head injury is a comorbidity (secondary to some other injury). Current medical practice is for military doctors to screen 100 percent of patients evacuated to Landstuhl for any types of injuries for TBI.

The military conducts post-deployment health-assessment surveys at the major U.S. bases to which service members return after an overseas deployment (for instance, Ft. Bragg, Ft. Carson, or Camp Pendleton). TBIs sustained, but undiagnosed, in-theater would not generally be evident from neuroimaging conducted months later in the United States. Instead, initial screening of a TBI is based on a soldier's responses to post-deployment survey questions related to:

- The injury-causing event itself (for example, proximity to an explosion);
- Loss of consciousness or altered consciousness immediately following the injury-causing event; or
- Subsequent physical, cognitive, or emotional consequences, including:
 - memory problems or lapses,
 - balance problems or dizziness,
 - ringing in the ears,
 - sensitivity to bright light,
 - irritability,
 - headaches, or
 - sleep problems.

Between October 2001 and December 2006, DoD physicians diagnosed 1,950 TBIs among the wounded in action from OIF and OEF combined. Neurologists classify TBIs as mild, moderate, or severe. Of the 1,950 total TBIs, some 1,322 (or just over two-thirds) were considered mild. Those figures imply that 8.2 percent of wounded troops suffered a TBI, of which 5.5 percent suffered a mild case and the remainder either a moderate or severe case. (A data update indicates 2,669 TBIs

through July 2007, although the split by severity level was not provided.)¹² Some TBIs may go undiagnosed, but absent obvious penetration wounds or other indications that acute care is required, those TBIs are likely to have been mild. Those patients may already be asymptomatic by the time their units return to the United States, although a small portion may have lingering effects.

Post-traumatic Stress Disorder and Other Mental Health Problems. An oft-quoted statistic is that 37 percent of the 229,000 OIF/OEF veterans (some 84,000) were seen for mental health problems; many of those same veterans were seen for other medical conditions as well.¹³ It is difficult to estimate the long-run costs stemming from those mental health diagnoses. VA states that some of the visits were “rule-outs,” during which the physician determined that the veteran did not have a mental health problem; other mental health diagnoses were provisional (pending further evaluation). Some veterans with confirmed mental health diagnoses may simply require limited counseling sessions or prescription medicine management.

One-third of OIF/OEF veterans (229,000 out of 690,000) have sought VA medical care since 2002. If veterans who suspect they have mental health or other medical problems are more likely than other veterans to seek VA medical care, it would be incorrect to extrapolate and reach the conclusion that 37 percent of all OIF/OEF veterans have mental health problems. For example, the overall mental health incidence rate may be lower because OIF and OEF veterans who have not sought VA medical care do not suffer from those conditions. However, some veterans with mental health problems may not seek care out of concern for being stigmatized. Reservists, in particular, might fear that their deactivation (and return to their hometowns) could be delayed until treatment was completed.

With regard to post-traumatic stress disorder, 39,000 of the 84,000 veterans who were seen for mental health problems received a diagnosis of PTSD (albeit sometimes a provisional diagnosis); some were diagnosed with other mental health conditions as well. Based on those data, the incidence rate of PTSD is 17 percent among the 229,000 OIF/OEF veterans who have sought VA medical care since 2002. The PTSD incidence rate among the entire OIF/OEF veteran population

12. It has also been reported that among patients medically evacuated to Walter Reed Army Medical Center for battle-related injuries, 28 percent were diagnosed with a TBI. However, the 28 percent incidence rate applies only to patients at Walter Reed, not to the much larger (and, on average, less seriously wounded) pool of all wounded troops, over half of whom return to duty within 72 hours. See Deborah L. Warden and others, “The Defense and Veterans Brain Injury Center (DVBIC) Experience at Walter Reed Army Medical Center (WRAMC),” *Journal of Neurotrauma* 22 (2005), p. 1178; and Deborah L. Warden, “Military TBI During the Iraq and Afghanistan Wars,” *Journal of Head Trauma Rehabilitation* 21 (2006), pp. 398–402.

13. The source for that statistic is Veterans’ Health Administration, Office of Public Health and Environmental Hazards, *Analysis of VA Health Care Utilization Among U.S. Southwest Asia War Veterans* (April 2007).

could be either higher or lower. A 2004 study in the *New England Journal of Medicine (NEJM)* reported PTSD rates of 12 percent for soldiers and Marines three to four months after returning from deployment to Iraq with infantry units, and a rate of 6 percent for infantry soldiers returning from Afghanistan (where the intensity of combat has been lower).¹⁴ The rates for soldiers in combat-support or combat-service-support units could be lower than in the infantry because those units have less direct exposure to combat situations. However, the deployments studied in the *NEJM* article were for durations of between six and eight months, whereas current deployments for Army units may be as long as 12 or even 15 months, increasing the potential combat exposure.

Cost Analysis of Traumatic Brain Injuries

If the Congress seeks projections of VA's future resource needs, then the costs of treating all current and future TBI patients are relevant. However, to estimate costs specifically associated with OIF and OEF, it is important to exclude an estimate of the number of TBIs that might have been experienced in a comparably sized military population during peacetime. In 1999, incidence rates in the Army per 100,000 soldiers were as follows: mild TBIs, 34.0; moderate TBIs, 6.1; severe TBIs, 10.6; and TBIs of unknown severity, 11.6.¹⁵ Given a deployed force that has averaged about 180,000 troops on the ground (including Marines as well as Army soldiers), one would expect to see annual counts of about 110 TBIs in Iraq and Afghanistan, of which at least 60 would be classified as mild.¹⁶ TBIs in those theaters have been diagnosed at the rate of about 500 per year, but about one-fifth of that total might have occurred even in a peacetime environment.

The cost of treating a TBI patient must take into account the severity of the injury. A 2005 paper by Wallsten and Kosec reported:

14. Charles W. Hoge and others, "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," *New England Journal of Medicine*, vol. 351, no. 1 (July 1, 2004), pp. 13–22. A more recent study reports that between 4.8 percent and 9.8 percent of soldiers and Marines screen positive for PTSD on the post-deployment health-assessment survey that DoD administers one or two weeks after units return to the United States; see Charles W. Hoge and others, "Mental Health Problems, Use of Mental Health Services, and Attrition from Military Service After Returning from Deployment to Iraq or Afghanistan," *Journal of the American Medical Association*, vol. 295, no. 9 (March 1, 2006), pp. 1023–1032.

15. Brian J. Ivins and others, "Hospital Admissions Associated with Traumatic Brain Injury in the U.S. Army During Peacetime: 1990s Trends," *Neuroepidemiology*, vol. 27, no. 3 (2006), pp. 154–163.

16. The total number of soldiers and Marines has averaged about 160,000 in the Iraq theater (including Kuwait and other nearby countries) and 20,000 in Afghanistan. The recent surge in forces in Iraq was achieved largely by deploying troops sooner than was previously planned and by extending the deployment of forces already in that theater. The surge has increased the U.S. military presence in Iraq by between 30,000 and 40,000, but a force that large was not on the ground during the period in which the wartime casualty statistics were generated.

“We made the conservative assumption that only those with severe brain injuries and amputations would require lifetime care. Estimates commonly used by medical experts suggest a lifetime cost of care for brain injuries ranging from \$600,000 to \$4,000,000 per person and about \$45,000 to \$57,000 for amputees, plus the cost of prosthetic limbs ranging from about \$12,500 to about \$100,000.”¹⁷

Despite their stated attempt to estimate costs conservatively, Wallsten and Kosec did not take into account the fact that about two-thirds of the TBIs from OIF and OEF have been classified as mild. While some have expressed concern that there may be lingering effects from mild TBIs, medical evidence suggests that the most common path is for natural recovery within a matter of weeks or at most months, although a small percentage of patients with mild TBIs exhibit persistent symptoms.¹⁸ Instead, Wallsten and Kosec equated all TBIs (regardless of severity) to “severe head injuries” sustained in automobile crashes, as defined and calibrated by the National Highway Transportation Safety Administration. On the basis of that equation, Wallsten and Kosec estimated between \$600,000 and \$4 million for lifetime care of a brain-injured victim.

The two types of injuries—TBIs sustained in combat and severe head injuries sustained in automobile crashes—are actually quite different. All U.S. soldiers are issued Kevlar helmets that are capable of deflecting some bullets and shrapnel, or at least significantly reducing their velocity upon penetration. Motorists do not generally wear helmets, and not all wear seat belts (although many vehicles are equipped with air bags); therefore, their head injuries are much more likely to affect the brain directly.¹⁹

17. Scott Wallsten and Katrina Kosec, “The Economic Costs of the War in Iraq,” Working Paper No. 05-19 (Washington, D.C.: AEI-Brookings Joint Center for Regulatory Studies, September 2005), p. 22.

18. See H.S. Levin and others, “Neurobehavioral Outcome Following Minor Head Injury: A Three-Center Study,” *Journal of Neurosurgery*, vol. 66, no. 2 (February 1987), pp. 234–243; and M.P. Alexander, “Mild Traumatic Brain Injury: Pathophysiology, Natural History, and Clinical Management,” *Neurology* 45 (1995), pp. 1253–1260.

19. Similarly, Wallsten and Kosec applied their “lifetime care” estimate to all amputations, even though 14 percent of amputations from OIF and OEF have involved only fingers or toes, obviating the need for prosthetic limbs.

Linda Bilmes and Joseph Stiglitz present arguments similar to those offered by Wallsten and Kosac:

“There is a special category of health care expenditures that go beyond those included in the above calculation—for those with brain injuries. To date, 3213 people—20% of those injured in Iraq—have suffered head/brain injuries that require lifetime continual care at a cost range of \$600,000 to \$5 million. The government will be required to commit resources through intensive care facilities, round-the-clock home or institutional care, rehabilitation and assisted living for these veterans. For the conservative estimate, we have used a midpoint estimate of a net present value of \$2.7 million over a 20 year expected survival rate for this group, which is about \$135,000 per year, yielding a cost of \$14 billion. This amount seems low for brain-injured individuals who will require round-the-clock care in feeding, dressing and daily functioning. For the moderate estimate, we use a higher cost estimate (\$4m) and assume longer life duration for a total cost of \$35 billion. In both cases we assume that the number injured will rise in a manner consistent with the duration of the conflict.”²⁰

On the basis of the DoD medical census, 1,950 TBIs had been diagnosed through December 2006 and 2,669 through July 2007, but still not the 3,213 that Bilmes and Stiglitz assert had occurred as early as January 2006. More important, two-thirds of the diagnoses were for mild TBIs, from which most patients should recover naturally, especially if given prompt treatment. The scenario of “lifetime continual care” applies to a group of wounded soldiers numbering perhaps in the hundreds but not to the vast majority of those diagnosed with TBIs. To further illustrate the implausibility of Bilmes and Stiglitz’s cost estimates, note that in 2007 VA obligated \$573 million for medical care (for all injuries and illnesses) of veterans of OIF and OEF. Yet Bilmes and Stiglitz’s low estimate implies annual

20. Linda Bilmes and Joseph Stiglitz, “The Economic Costs of the Iraq War: An Appraisal Three Years After the Beginning of the Conflict,” Working Paper No. 12054 (Cambridge, Mass.: National Bureau of Economic Research, February 2006), p. 9. The authors’ research was originally presented at the Allied Social Sciences Association Annual Conference, Boston, January 2006.

Table 3.

Number of Veterans of OIF and OEF Treated at VA Medical Facilities and the Average Annual Cost of Treatment

	2005	2006	2007	2008
Number of OIF/OEF Veterans Treated	101,000	155,000	209,000	263,000
Average Annual Cost per OIF/OEF Patient (Dollars)	2,310	2,610	2,740	2,860

Source: Department of Veterans Affairs (VA) based on budget submissions for fiscal years 2007 and 2008.

Notes: OIF = Operation Iraqi Freedom; OEF = Operation Enduring Freedom.

Numbers for 2005 are from VA's fiscal year 2007 budget submission.

Numbers for 2006 through 2008 are from VA's fiscal year 2008 budget submission.

expenditures averaging about \$900 million, and their high estimate implies average annual expenditures of \$1.6 billion extending for decades to treat just the brain-injured veterans.²¹

Utilization of VA Medical Care

Of the 320,000 active-duty veterans of OIF and OEF who have separated from military service through April 2007, 112,000 have received health care from VA. In addition, 370,000 members of the Reserve or National Guard have returned from OIF or OEF and become eligible for VA health care, of which 117,000 have received care. Among that total of 229,000 patients, 3 percent (fewer than 8,000)

21. Bilmes and Stiglitz's estimate of a 20 percent incidence rate of brain injuries was adopted from the earlier paper by Wallsten and Kosec. That estimate, in turn, was based on a misinterpretation of a research paper by an Air Force ear-nose-and-throat specialist (or otolaryngologist) and head-and-neck surgeon who had been stationed at Landstuhl Regional Medical Center: Lt. Colonel Michael S. Xydakis and others, "Analysis of Battlefield Head and Neck Injuries in Iraq and Afghanistan," *Otolaryngology—Head and Neck Surgery*, vol. 133, no. 4 (October 2005), pp. 497–504. The paper was originally presented at the American Academy of Otolaryngology Head and Neck Surgery Annual Meeting, New York, September 2004. Lt. Colonel Xydakis and his colleagues found that among 2,483 battle-injured patients evacuated from Iraq or Afghanistan and treated at Landstuhl through March 19, 2004, some 21 percent had head or neck trauma. However, neck injuries affect the area below the helmet line and are distinct from brain injuries; TBIs (as a primary diagnosis) would be treated by neurologists rather than otolaryngologists. Moreover, the 21 percent incidence rate would at most apply only to those patients evacuated to Landstuhl and classified as "battle-injured," not to the much larger (and, on average, less-seriously wounded) pool of all wounded troops, over half of whom return to duty within 72 hours.

have been hospitalized at least once in a VA facility since 2002; the other 97 percent were seen on an outpatient basis only.

Not all of the 229,000 OIF/OEF patients visit a VA medical facility during any single year. In 2006, for example, VA treated over 5 million veterans, including 155,000 OIF/OEF veterans, who accounted for 3 percent of the total veteran patient load (see Table 3).

VA is treating a certain number of recent veterans for the amputations and severe brain injuries discussed above, as well as for other serious injuries, although those veterans may be treated for many months by DoD (for example, at Walter Reed Army Medical Center) before being released to VA. VA estimates an average annual cost of \$2,610 per OIF/OEF veteran who used VA health care in 2006, versus an overall average of \$5,765 per year for all VA patients.

Projections of VA's Costs for Medical Care, Disability Compensation, and Survivors' Benefits

CBO has developed projections of VA's costs to treat all veterans of OIF and OEF who are eligible for VA medical care and who demand that care. However, some of those veterans would have been eligible for such care and would have used the VA medical system even if they had not deployed to Iraq and Afghanistan (for example, for treatment of normal age- or training-related injuries to the musculoskeletal system). Those costs that are not specifically attributable to deployments to Iraq or Afghanistan should be subtracted from the gross cost estimates. Conversely, some veterans may develop service-connected conditions during their tours in Iraq and Afghanistan, yet not present for VA medical care until many years after they separate from active duty. CBO is continuing to refine its projection model to account for those possibilities.²²

Along with medical care, the Department of Veterans Affairs provides compensation and various other benefits, including life insurance and educational benefits, to veterans. Calculations of the cost of the war to VA should include the costs of these other benefits over and above the costs that would have been incurred had the war not been fought. The two programs most likely to be significantly affected by the current operations are disability compensation paid to veterans with

22. The projections in this testimony update those reported in the statement of Allison Percy, Principal Analyst, Congressional Budget Office, *Future Medical Spending by the Department of Veterans Affairs*, before the Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, House Committee on Appropriations (February 15, 2007), and Congressional Budget Office, *Potential Growth Paths for Medical Spending by the Department of Veterans Affairs* (July 2006).

service-connected disabilities, and dependency and indemnity compensation benefits paid to survivors of service members.²³

Disability compensation is a monetary payment made to veterans who have become disabled as a result of a medical condition incurred or aggravated during their active-duty service. The level of a veteran's disability is rated between 0 and 100 percent, in increments of 10 percent. Compensation is based on the veteran's disability rating, with special payments for the most severely injured veterans. In 2007, those tax-free payments ranged from \$115 per month for veterans with a 10 percent disability to \$2,471 per month for those rated 100 percent disabled. Special payments could range up to \$7,070 per month. CBO estimates that VA paid a total of \$26.6 billion in disability compensation in 2007, of which \$126 million was paid to veterans of OIF and OEF.

DIC, or survivors,' benefits are monthly payments made to survivors of certain deceased veterans, including those who died while on active duty and those who died of service-connected disabilities. In 2007, surviving spouses were awarded a base monthly payment of \$1,067, although additional payments could be made depending on the circumstances. CBO estimates that VA paid a total of \$4.4 billion in survivors' benefits in 2007, of which \$35 million went to survivors of veterans of OIF and OEF.

CBO has projected VA's potential costs for medical care, disability compensation, and survivors' benefits under the assumption that historical casualty rates (per deployed service member per year, see Table 1) for operations in Iraq and Afghanistan over the 2003–2006 period will continue into the future and that the necessary funds are appropriated. CBO presents two broad illustrative scenarios for the force levels in-theater over the coming years. Under the first scenario, the number of deployed troops would decline from an average of approximately 210,000 active-duty, Reserve, and National Guard personnel on the ground in fiscal year 2007 to 30,000 in 2010 and would remain at that level over the 2010–2017 period, though not necessarily in Iraq and Afghanistan. In the second scenario, the number

23. The current testimony does not include the costs of any increases in veterans' pensions or vocational rehabilitation provided by VA. Nor does it include the costs of disability retirement pay, disability severance pay, or Survivor Benefit Plan payments provided by DoD, which would be largely offset by VA benefits. Finally, the testimony excludes payments from the Servicemembers' Group Life Insurance or Traumatic Servicemembers' Group Life Insurance programs. DoD pays the additional costs incurred by those insurance programs for claims related to operations in Iraq and Afghanistan.

Table 4.

Estimated Spending by the Department of Veterans Affairs on Veterans of OIF and OEF Under Two Scenarios, 2008 to 2017

(Millions of dollars, by fiscal year)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10-Year Projections, 2008–2017
Low Option with 12-Month Surge											
Medical Care	692	741	796	745	669	621	607	622	660	712	6,866
Disability Compensation	166	188	197	207	218	228	239	251	263	275	2,233
Dependency and Indemnity Compensation	43	47	50	52	54	57	59	62	64	67	555
Total	901	976	1,043	1,005	940	906	906	935	987	1,055	9,654
High Option with 12-Month Surge											
Medical Care	692	741	833	892	940	970	980	996	1,038	1,106	9,187
Disability Compensation	166	202	237	267	292	314	336	359	382	407	2,962
Dependency and Indemnity Compensation	43	50	57	64	69	74	78	83	88	93	699
Total	901	993	1,127	1,223	1,302	1,358	1,394	1,437	1,508	1,606	12,849

Source: Congressional Budget Office.

Notes: OIF = Operation Iraqi Freedom; OEF = Operation Enduring Freedom.

Under the first scenario, the number of deployed troops drops to 30,000 by 2010 and remains at that level throughout the projection period. Under the second scenario, the number of deployed troops drops to 75,000 by 2013 and remains at that level throughout the projection period.

of deployed troops would decline more gradually over a six-year period, until 75,000 remained overseas in 2013 and each year thereafter.²⁴

Because VA's costs could also depend on how long DoD sustains the increase in force levels currently in the Iraq theater, CBO estimated the costs for both scenarios under the assumption that the current force level in Iraq would be sustained for periods of, respectively, 12 or 24 months. CBO found that the costs to VA over the

24. The two scenarios are described in more detail in the Statement of Robert A. Sunshine, Assistant Director for Budget Analysis, Congressional Budget Office, *Estimated Costs of U.S. Operations in Iraq and Afghanistan and of Other Activities Related to the War on Terrorism*, before the House Committee on the Budget (July 31, 2007). CBO has more recently constructed long-term scenarios in which the United States maintains a military presence of about 55,000 troops in Iraq, similar to the level of U.S. forces in the Republic of Korea and the Northeast Asia region; see Congressional Budget Office, *The Possible Costs to the United States of Maintaining a Long-Term Military Presence in Iraq* (September 2007). However, the current testimony, which focuses on the next 10 years, does not provide projections of VA's costs under those alternative long-term scenarios.

10-year period would not vary substantially with the number of months that deployed forces were maintained at the current level before troop levels began to decline. Consequently, in this testimony, CBO presents solely the estimates for VA's costs based on the larger troop presence lasting 12 months.

Under the first scenario, in which the number of deployed troops drops to 30,000 by 2010, VA would incur costs of about \$9.7 billion over the 2008–2017 period for medical care, disability compensation, and survivors' benefits. Alternatively, if deployed forces declined more slowly to 75,000 by 2013, as in the second scenario, VA's costs would reach almost \$13 billion for those purposes over the next 10 years, CBO estimates (see Table 4).

Costs for Medical Care

Under the assumptions in the first scenario, CBO estimates, VA's costs would reach almost \$7 billion from 2008 through 2017 for medical care for veterans with service-connected conditions incurred in Iraq and Afghanistan. Under the second scenario, VA's costs would be over \$9 billion.²⁵

For 2008 through 2017, CBO projects that VA's costs to treat veterans of OIF and OEF will be related to the number of service members wounded in action, with most veterans presenting for care at VA medical facilities shortly after they separate from active duty. Because the majority of veterans return to work and obtain employer-sponsored insurance that they may prefer to use, CBO anticipates that those veterans will move out of the VA medical system over time, although some will continue to seek part or all of their care from VA. CBO projects that VA's per capita cost of care will grow at the same rate as national health expenditures, with nominal growth rates at about 7 percent per year from 2008 through 2017.

Costs for Disability Compensation

According to CBO's projections, VA's spending on disability compensation related to operations in Iraq and Afghanistan would total \$2.2 billion under the first scenario and \$3.0 billion under the second scenario over the 2008–2017 period.

DoD provided data on the number and VA disability ratings of service members who were injured in and evacuated from Iraq and Afghanistan and who later separated from the military. CBO applied projections of annual payments to people with varying disability ratings to estimate total costs for disability compensation. In addition, CBO assumed that approximately three times the number of claims associated with medical evacuation would eventually be made by veterans who incur service-connected conditions as a result of operations in Iraq and Afghanistan that are not severe enough to require medical evacuation from the theater.

25. CBO's projection of \$692 million in OIF/OEF medical costs for 2008 compares to the figure \$752 million that VA included in its 2008 budget request.

CBO assumed that those additional veterans would, on average, receive a 40 percent disability rating.

Costs for Dependency and Indemnity Compensation

For the 10-year period from 2008 through 2017, CBO projects spending on DIC payments made to the dependents of service members who die in the current operations at about \$550 million under the first scenario and \$700 million under the second. To construct those estimates, CBO assumed that 60 percent of service members dying in OIF and OEF would have dependents eligible for DIC and that payment amounts would rise at about 2.2 percent per year in the future.